

**AMENDMENTS TO THE SPECIFICATION:**

*Please replace the paragraph at Page 8, line 3, with the following:*

Q1 The optical density of the recording layer of the present invention, specifically, the reflection density caused by an infrared absorbing agent in a recording layer for the exposed wavelength is from 0.4 to 2.0, and preferably from 0.6 to 1.6, and an infrared absorbed is so contained that the optical density is relatively high. Therefore, due to exposure using infra-red rays, a polymerization reaction is generated, and this reaction proceeds quickly in the vicinity of the surface of the recording layer, and thus high film hardness is ~~achived~~ achieved. However, an infrared laser used for exposure does not easily permeate into the deeper portion of the recording layer, and further, heat is diffused to a substrate, and the film hardness around a substrate is lower in comparison. The film hardness of the upper portion of the recording layer is thus higher than the average film hardness of the recording layer. Here, the upper portion of the recording layer ~~refer~~ refers to a portions within 20% of the thickness of the recording layer from the surface ~~there of~~ thereof.

*Please replace the paragraph at Page 11, line 13, with the following:*

Q2 Ar<sup>1</sup> and Ar<sup>2</sup> may be the same or different, and represent an aromatic hydrocarbon group which may have a substituent. Y<sup>1</sup> and Y<sup>2</sup> may be the same or different, and represent a dialkylmethylene group having 12 or less sulfur atoms or carbon atoms. R<sup>3</sup> and R<sup>4</sup> may be the same or different, and represent a hydrocarbon group having 20 or less carbon atoms and which may have a substituent. Examples of the preferable substituent

are alkoxy groups having 12 or less carbon atoms, carboxyl groups and sulfo groups.  $R^5$ ,  $R^6$ ,  $R^7$ , and  $R^8$  may be the same or different, and represent a hydrogen atom or a hydrocarbon group having 12 or less carbon atoms. From the standpoint of availability, they preferably represent a hydrogen atom.  $Z^{1-}$  represents a counter anion. However, when any of  $R^1$  to  $R^8$  is substituted with a sulfo group,  $Z^{1-}$  is not necessary. As  $Z^{1-}$ , preferable are halogen ions, perchlorate ion, tetrafluoroborate ion, hexafluorophosphate ion and sulfonate ion, and particularly preferable are a perchlorate ion, hexafluorophosphate ion and arylsulfonate ion, from the standpoint of storage stability of a photosensitive layer application solution.

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*Please replace the paragraph at Page 22, line 20, with the following:*

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Among them, those having an acidic group exemplified in the following (1) to (6) on the main chain and/or side chain of the polymer are preferable from the standpoint of solubility in an alkaline developing solution.

- (1) Phenol group ( $-\text{Ar}-\text{OH}$ )
- (2) ~~Sulfoneamide~~ Sulfonamide group ( $-\text{SO}_2\text{NH}-\text{R}$ )
- (3) Substituted ~~sulfoneamide-based~~ sulfonamide-based acid group (hereinafter, referred to as "active imide group")  
[ $-\text{SO}_2\text{NHCOR}$ ,  $-\text{SO}_2\text{NHSO}_2\text{R}$ ,  $-\text{CONHSO}_2\text{R}$ ]
- (4) Carboxyl group ( $-\text{CO}_2\text{H}$ )
- (5) Sulfonic group ( $-\text{SO}_3\text{H}$ )
- (6) Phosphoric group ( $-\text{OPO}_3\text{H}_2$ )

*Please replace the paragraph at Page 23, line 8, with the following:*

A4  
Among alkaline water-soluble polymers having an acidic group selected from the above-mentioned (1) to (6), alkaline water-soluble polymers having (1) a phenol group, (2) a ~~sulfonamide~~ sulfonamide group and (3) an active imide group are most preferable from the standpoints of solubility in an alkaline developing solution, developing latitude, and sufficient ensuring of film strength.

*Please replace the paragraph at Page 24, line 12, with the following:*

A5  
Examples of the above-mentioned aryl group include, for example, a phenyl group, naphthyl group, anthracenyl group, ~~phenanthrenyl~~ phenanthrenyl group and the like, and of them, a phenyl group or naphthyl group is preferable from the standpoints of easy availability and physical properties.

No, page 25 to replace.  
*Please replace Page 25 with the attached Page 25.*

*Please replace the paragraph at Page 35, line 4, with the following:*

A6  
Examples of the above-mentioned acrylamides include acrylamide, N-methylacrylamide, N-ethylacrylamide, N-propylacrylamide, N-butylacrylamide, N-benzylacrylamide, N-hydroxyethylacrylamide, N-phenylacrylamide, N-tolylacrylamide, N-(p-hydroxyphenyl)acrylamide, N-(sulfamoylphenyl)acrylamide, ~~N-(phenylsulfonyl)-acrylamide~~ N-(phenylsulfonyl)acrylamide, N-(tolylsulfonyl)acrylamide, N,N-

a6 dimethylacrylamide, N-methyl-N-phenylacrylamide, N-hydroxyethyl-N-methylacrylamide and the like.

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*Please replace the paragraph at Page 35, line 13, with the following:*

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a7 Examples of the above-mentioned methacrylamides include methacrylamide, N-methylmethacrylamide, N-ethylmethacrylamide, N-propylmethacrylamide, N-butylmethacrylamide, N-benzylmethacrylamide, N-hydroxyethylmethacrylamide, N-phenylmethacrylamide, N-tolylmethacrylamide, N-(p-hydroxyphenyl)methacrylamide, N-(sulfamoylphenyl)methacrylamide, ~~N-(phenylsulfonyl)methacrylamide~~ N-(phenylsulfonyl)methacrylamide, N-(tolylsulfonyl)methacrylamide, N,N-dimethylmethacrylamide, N-methyl-N-phenylmethacrylamide, N-hydroxyethyl-N-methylmethacrylamide and the like.

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*Please replace the paragraph at Page 36, next-to-last line, with the following:*

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a8 As the alkaline water-soluble polymer (2) having a ~~sulfonamide~~ sulfonamide group, for example, polymers constituted, as the main constituent component, of a minimum constituent unit derived from a compound having a ~~sulfonamide~~ sulfonamide group are listed. As the above-mentioned compound, compounds having, in the molecule, one or more ~~sulfonamide~~ sulfonamide groups in which at least one hydrogen atom is bonded to a nitrogen atom and one or more polymerizable unsaturated bonds, are listed. Among other, lower molecular weight compounds having in the molecule an acryloyl group, allyl group or vinyloxy group, and a substituted or mono-substituted aminosulfonyl

98 group or a substituted sulfonylimino group are preferable, and for example, compounds of the following general formulae 1 to 5 are listed.

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*Please replace the paragraph at Page 48, next-to-last line, with the following:*

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99 The substrate is a dimensionally stable plate, and there are listed, for example, paper, paper laminated with plastics (for example, polyethylene, polypropylene, polystyrene and the like), metal plates (for example, aluminum, zinc, copper and the like), and plastic films (for example, cellulose diacetate, cellulose triacetate, cellulose propionate, cellulose butyrate, cellulose acetate butyrate, cellulose nitrate, polyethylene terephthalate, polyethylene, polystyrene, polypropylene, ~~polycarbonate~~ polycarbonate, polyvinyl acetal and the like), paper or plastic films laminated or vapor-deposited with metals as described above, and the like.

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*Please replace the paragraph at Page 53, last line, with the following:*

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910 The extent of permeability into this recording layer can be detected by change of electrostatic capacity. An example of the method of measuring electrostatic capacity which indicates permeability in the present invention is one in which an aluminum substrate carrying thereon a hardened recording layer is immersed as one electrode in a developer, a conductor is connected to the aluminum substrate, and a ~~usual~~ conventional electrode is used as another electrode, and voltage is applied, as shown in Fig. 1. When the voltage is applied initially, a recording layer functions as an insulation layer and electrostatic capacity does not change. However, with the lapse of immersion time, a developer permeates into

Q10 the interface between a substrate and a recording layer, and the electrostatic capacity changes. When time until this change in electrostatic capacity is longer, permeability is judged to be low.

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*Please replace the paragraph at Page 54, line 15, with the following:*

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Q11 Fig. 2 is a graph showing a relation between immersion time (voltage application time) and electrostatic capacity. Time  $t_s$  represents time of usual development conducted using an automatic developing machine. In a graph A represented by solid line, time  $t_A$  is required for a change in electrostatic capacity to take place, and is longer than usual development time  $[T_s] t_s$ . Therefore, in usual development, damage of hardened image portions and decrease in printing endurance do not occur. On the other hand, in a graph B represented by the broken line, only time  $t_B$  is necessary for the [in] electrostatic capacity to change, and it is shorter than usual development time  $t_s$ . Therefore, it is estimated that, in usual development, a developer permeates into the interface between a substrate and a recording layer, to cause reduction in close adherence at the interface, thus causing peeling of image portions.

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*Please replace the paragraph at Page 57, line 7, with the following:*

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Such a weak acid is selected from those described in Pergamon Press, IONISATION CONSTANTS OF ORGANIC ACIDS IN AQUEOUS SOLUTION, and the like, and examples include alcohols such as 2,2,3,3-tetrafluoropropanol-1 (pKa 12.74), trifluoroethanol (pKa 12.37), trichloroethanol (pKa 12.24) and the like; aldehydes such as

Q12

Q12 ~~pyridine-2-aldehyde~~ pyridine-2-aldehyde (pKa 12.68), ~~pyridine-4-aldehyde~~ pyridine-4-  
aldehyde (pKa 12.05) and the like; saccharides such as sorbitol (pKa 13.0), saccharose  
(pKa 12.7), 2-deoxyribose (pKa 12.61), 2-deoxyglucose (pKa 12.51), glucose (pKa 12.46),  
galactose (pKa 12.35), arabinose (pKa 12.34), xylose (pKa 12.29), fructose (pKa 12.27),  
ribose (pKa 12.22), mannose (pKa 12.08), L-ascorbic acid (pKa 11.34) and the like;  
compounds having a phenolic hydroxyl group such as salicylic acid (pKa 13.0), ~~3-hydroxy-~~  
~~2-naphthoic~~ 3-hydroxy-2-naphthoic acid (pKa 12.84), catechol (pKa 12.6), gallic acid (pKa  
12.4), sulfosalicylic acid (pKa 11.7), 3,4-dihydroxysulfonic acid (pKa 12.2), 3,4-  
dihydroxybenzoic acid (pKa 11.94), 1,2,4-trihydroxybenzene (pKa 11.82), hydroquinone  
(pKa 11.56), pyrogallol (pKa 11.34), resorcinol (pKa 11.27) and the like; oximes such as  
2-butanoneoxime (pKa 12.45), acetoxime (pKa 12.42), 1,2-cycloheptanedionedioxime (pKa  
12.3), 2-hydroxybenzaldehydeoxime (pKa 12.10), dimethylglyoxime (pKa 11.9),  
ethanediamidedioxime (pKa 11.37), acetophenoneoxime (pKa 11.35) and the like; amino  
acids such as 2-quinolone (pKa 11.76), 2-pyridone (pKa 11.65), 4-quinolone (pKa 11.28),  
4-pyridone (pKa 11.12), 5-aminovaleric acid (pKa 10.77), 2-mercaptoquinoline (pKa  
10.25), 3-aminopropionic acid (pKa 10.24) and the like; nucleic acid associated substances  
such as fluorouracil (pKa 13.0), guanosine (pKa 12.6), uridine (pKa 12.6), adenosine (pKa  
12.56), inosine (pKa 12.5), guanine (pKa 12.3), cytidine (pKa 12.2), cytosine (pKa 12.2),  
hypoxanthin (pKa 12.1), xanthin (pKa 11.9) and the like; and in addition, weak acids such  
as diethylaminomethylphosphonic acid (pKa 12.32), 1-amino-3,3,3-trifluorobenzoic acid  
(pKa 12.29), isopropylidenediphosphonic acid (pKa 12.10), 1,1-ethylidenediphosphonic  
acid (pKa 11.54), 1-hydroxy 1,1-ethylidenediphosphonate (pKa 11.52), benzimidazole

Q12 (pKa 12.86), thiobenzamide (pKa 12.8), picolinethioamide (pKa 12.55), barbituric acid (pKa 12.5) and the like.

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*Please replace the paragraph at Page 59, line 15, with the following:*

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Q13 As preferable examples of the surfactant, there are listed nonionic surfactants such as polyoxyethylene alkyl ethers, polyoxyethylene alkylphenyl ethers, polyoxyethylene polystyrylphenyl ethers, polyoxyethylene polyoxypropylenealkyl ethers, glycerin fatty acid partial esters, sorbitan fatty acid partial esters, pentaerythritol fatty acid partial esters, propylene glycol monofatty esters, saccharose fatty acid partial esters, polyoxyethylene sorbitan fatty acid partial esters, polyoxyethylene sorbitol fatty acid partial esters, polyethylene glycol fatty esters, polyglycerin fatty acid partial esters, polyoxyethylenized, castor oils, polyoxyethylene glycerin fatty acid partial esters, fatty acid diethanolamides, N,N-bis-2-hydroxyalkylamines, polyoxyethylenealkylamine, triethanolaminefatty esters, trialkylamine oxides and the like; anionic surfactants such as fatty acid salts, abietic acid salts, hydroxyalkanesulfonic acid salts, alkanesulfonic acid salts, dialkylsulfosuccinate salts, alkyl-naphthalenesulfonic acid salts, alkylphenoxypolyoxyethylenepropylsulfonic acid salts, polyoxyethylene alkylsulfophenyl ether salts N-methyl-N-oleyltaurin sodium salt, N-alkylsulfosuccinic monoamide disodium salts, petroleum sulphononic acid salts, sulfated beef tallow oil, sulfate salts of fatty acid alkyl esters, alkyl sulfate salts, polyoxyethylene alkyl ether sulfate salts, fatty monoglyceride sulfate salts, polyoxyethylene alkylphenyl ether sulfate salts, polyoxyethylene styrylphenyl ether sulfate salts, alkylphosphate salts, polyoxyethylene alkyl ether phosphate salts, polyoxyethylene alkylphenyl ether phosphate



Q13 salts, partial saponified substances of styrene/maleic anhydride copolymers, partial saponified substances of olefin/maleic anhydride copolymers, naphthalenesulfonic acid salt formalin condensates and the like; cationic surfactants such as alkylamine salts, quaternary ammonium salts ~~such as~~ such as tetrabutylammonium bromide and the like, polyoxyethylenealkylamine salts, polyethylenepolyamine derivatives and the like; and ampholytic surfactants such as carboxybetaines, aminocarboxylic acids, sulfobetaines, aminosulfates, imidazolines and the like. Of the above-listed surfactants, the polyoxyethylene can also be regarded as polyoxyalkylenes such as polyoxymethylene, polyoxypropylene, polyoxybutylene and the like, and surfactants thereof are also included.

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*Please replace the paragraph at Page 61, line 3, with the following:*

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Q14 Further preferable surfactants are fluorine-based surfactants containing a perfluoroalkyl group in the molecule. Examples of such a fluorine-based surfactant are anionic surfactants such as perfluoroalkylcarboxylic acid salts, perfluoroalkylsulfonic acid salts, perfluoroalkylphosphates and the like; ampholytic surfactants such as perfluoroalkylbetaine and the like; cationic surfactants such as perfluoroalkyltrimethylammonium salts and the like; and nonionic surfactants such as perfluoroalkylamine oxide, perfluoroalkyl ethylene oxide adducts, perfluoroalkyl group and hydrophilic group-containing oligomers, perfluoroalkyl group and lipophilic group-containing oligomers, ~~perfluoroalkyl~~ perfluoroalkyl group, hydrophilic group and lipophilic group-containing oligomers, perfluoroalkyl group and lipophilic group-containing urethane, and the like.

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*Please replace the paragraph at Page 61, line 22, with the following:*

Development stabilizer

Q15 In the developer and replenisher used in the present invention, various development stabilizer are used, and as preferable examples thereof are polyethylene glycol adducts of sugar alcohol described in JP-B No. 6-282979, ~~tetraalkylammonium~~ tetraalkylammonium salts such as tetrabutylammonium ~~hydroxide and~~ hydroxide and the like, phosphonium salts such as tetrabutylphosphonium bromide and the like, and iodonium salts such as diphenyl iodonium chloride and the like ~~are listed~~.

*Please replace the paragraph at Page 64, line 9, with the following:*

Organic carboxylic acid

Q16 To the developer and replenisher used in the present invention, also an organic carboxylic acid can further be added. Preferable are aliphatic carboxylic acids and aromatic carboxylic acids having 6 to 20 carbon atoms. As the specific examples of the aliphatic carboxylic acid, capronic acid, ~~enanthic~~ enanthic acid, caprylic acid, ~~lauric~~ lauric acid, ~~myristic~~ myristic acid, palmitic acid, stearic acid and the like, and alkanic acids having 8 to 12 carbon atoms are particularly preferable. Any of unsaturated fatty acids having a double bond in a carbon chain or branched carbon chains is permissible.

*Please replace the paragraph at Page 64, line 20, with the following:*

Q17 The aromatic carboxylic acid is a compound obtained by substitution of a carboxyl group on a benzene ring, naphthalene ring, anthracene ring or the like, and specific

Q17 examples thereof include o-chlorobenzoic acid, p-chlorobenzoic acid, o-hydroxybenzoic acid, p-hydroxybenzoic acid, o-aminobenzoic acid, ~~p-aminobenzoid~~ p-aminobenzoic acid, 2,4-dihydroxybenzoic acid, 2,5-dihydroxybenzoic acid, 2,6-dihydroxybenzoic acid, 2,3-dihydroxybenzoic acid, 3,5-dihydroxybenzoic acid, gallic acid, ~~1-hydroxy-2-naphtoie~~ 1-hydroxy-2-naphthoic acid, ~~3-hydroxy-2-naphtoie~~ 3-hydroxy-2-naphthoic acid, ~~2-hydroxy-1-naphtoie~~ 2-hydroxy-1-naphthoic acid, ~~1-naphtoie~~ 1-naphthoic acid, ~~2-naphtoie~~ 2-naphthoic acid and the like, and ~~hydroxynaphtoie~~ hydroxynaphthoic acid is particularly effective.

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*Please replace the paragraph at Page 74, line 2, with the following:*

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1. Evaluation of film hardness

Q18 The planographic printing plate [P-1] was exposed by Trendsetter 3244 VFS (tradename) manufactured by Creo, at a plate surface energy amount of ~~80 mj/cm<sup>2</sup>~~ 80 mJ/cm<sup>2</sup>. After exposure, film hardness was measured by using an apparatus prepared by amounting a thrusting apparatus (trade name: Triboscope, manufactured by HYSITRON) onto AFM (interatomic force microscope) SPA300 (trade name) manufactured by Seiko Instruments K.K. The film hardness of the upper part of the recording layer was 1.3 GPa, the average film hardness was 0.7 GPa, and the ratio of film hardness was 1.86.

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*Please replace the paragraph at Page 74, line 13, with the following:*

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2. Evaluation of permeability

Q19 The planographic printing plate [P-1] was exposed by Trendsetter 3244 VFS (tradename) manufactured by Creo, at a plate surface energy amount of ~~80 mj/cm<sup>2</sup>~~ 80

mJ/cm<sup>2</sup>. After exposure, the plate was immersed into a developer [D-1] shown below at 30-C using 4262A LCR meter (trade name) manufactured by Yokogawa Hewlett Packard K.K., and change in electrostatic capacity was measured. Change in electrostatic capacity occurred 70 seconds after immersion. The developer [D-1] had a pH of 11.8.

919 Developer [D-1]

Potassium hydroxide	3 g
Potassium hydrogen carbonate	1 g
Potassium carbonate	2 g
Sodium sulfite	1 g
Polyethylene glycol mononaphthyl ether	150 g
Sodium dibutyl-naphthalenesulfonate	50 g
Tetra sodium ethylenediamine tetraacetate	8 g
Water	85 g

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*Please replace the paragraph at Page 76, line 6, with the following:*

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4. Evaluation of dot reproducibility

Q20 The planographic printing plate [P-1] was exposed by Trendsetter 3244 VFS (tradename) manufactured by Creo, at a plate surface energy amount of ~~80 mJ/cm<sup>2</sup>~~ 80 mJ/cm<sup>2</sup> and a screen line number of 1751 pi. After exposure, the plate was subjected to development treatment using the same developer and automatic developing machine as in

"3. Evaluation of sensitivity.

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*Please replace the paragraph at Page 76, line 18, with the following:*

5. Evaluation of printing endurance

Q21 The planographic printing plate [P-1] was exposed by Trendsetter 3244 VFS (tradename) manufactured by Creo, at a plate surface energy amount of ~~80 mJ/cm<sup>2</sup>~~ 80 mJ/cm<sup>2</sup>. After exposure, the plate was subjected to development treatment using the same developer and automatic developing machine as in "3. Evaluation of sensitivity". The obtained planographic printing plate was set on a printer (trade name: Risron, manufactured by Komori Corporation), and printing was conducted using commercially available eco-ink and high quality paper, to obtain 100000 pieces of prints containing no blank part in image portions and causing no contamination in non-image portions.

*Please replace the paragraph at Page 77, line 14, with the following:*

1. Evaluation of film hardness

Q22 The planographic printing plate [P-1] was exposed by Trendsetter 3244 VFS (tradename: manufactured by Creo) at a plate surface energy amount of ~~80 mJ/cm<sup>2</sup>~~ 80 mJ/cm<sup>2</sup>. After exposure, film hardness was measured in the same manner as in Example 1. The film hardness of the upper part of the recording layer was 0.7 GPa, the average film hardness was 0.7 GPa, and the ratio of film hardness was 1.0.

*Please replace the paragraph at Page 78, line 10, with the following:*

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After development, the plate surface energy at which a clear solid image could be  
0.23 formed was measured. However, image could not be formed even at an energy of [30] 300  
mJ/cm<sup>2</sup>.

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